CLAIMS:

1. A method of generating in particular EUV radiation (12) and/or soft X-ray radiation (12a) emitted by a plasma (26) formed by an operating gas (22) in a discharge space (14), which space (14) comprises at least a radiation emission window (16) and an electrode system with at least one anode (18) and at least one cathode (20), which system transmits electrical energy into the plasma (26) by means of charge carriers (24) introduced into the discharge space (14), characterized in that at least one radiation (30) generated by at least one radiation source (28) is introduced into the discharge space (14) for making available the discharge carriers (24).

2. A method as claimed in claim 1, characterized in that the radiation source (28) generates coherent or incoherent radiation (30) of high energy density, such that charge carriers (24) are released into the discharge space (14) owing to the incidence of the radiation (30) on the electrode system.

3. A method as claimed in claim 1, characterized in that the radiation source (28) generates mass radiation (30) which consists of at least one electron and/or one ion.

4. A method as claimed in any one of the claims 1 to 3, characterized in that the radiation source (28) puts in pulsed radiation (30) with a first radiation path (32) and/or at least one second radiation path (34) simultaneously or mutually shifted in time into the discharge space (14).

5. A method as claimed in any one of the claims 1 to 4, characterized in that the electrode system comprises at least one auxiliary electrode (36) to which an additional potential is applied or which makes available charge carriers (24) or an operating gas (22) by acting as a sacrificial electrode.

6. A method as claimed in any one of the claims 1 to 5, characterized in that the radiation (30) is focused on at least one electrode (18, 20, 36) of the electrode system.

7. A method as claimed in any one of the claims 1 to 6, characterized in that the radiation (30) is incident on an electrode (18, 20, 36) that substantially consists of tungsten, molybdenum, iron, copper, tin, graphite, indium, antimony, tellurium, iodine, an alloy or a chemical compound thereof, or steel.

8. A method as claimed in any one of the claims 1 to 7, characterized in that the radiation (30) is guided onto the electrode (18, 20, 36) in a pattern having a point, circular, annular, or linear shape, and/or a combination thereof.

9. A method as claimed in any one of the claims 1 to 8, characterized in that the radiation (30) is introduced into at least one cavity of the affected electrode (18, 20, 36), which cavity is open towards the discharge space (14) and is bounded by electrode material at at least three sides.

10. A method as claimed in any one of the claims 1 to 9, characterized in that the operating gas (22) is introduced into the discharge space (14) by means of a feed duct (48) or an auxiliary ray (50) focused on the electrode (18, 20, 36).

11. A method as claimed in any one of the claims 1 to 10, characterized in that the radiation (30) is introduced into the discharge space (14) via the radiation emission window (16) or via an aperture (52).

12. A method as claimed in any one of the claims 1 to 11, characterized in that the radiation (30) has a wavelength in the UV, IR, and/or visible range.

13. A method as claimed in any one of the claims 1 to 12, characterized in that the radiation (30) is incident on the surface of the electrode (18, 20, 36) at an angle (α) of 0° to 90°.

14. A method as claimed in any one of the claims 1 to 13, characterized in that a time interval (Δt) is set between the introduction of the radiation (30) and the transmission of the electrical energy, or between the introduction of a or the auxiliary ray (50) and the radiation (30).

15. A device (10) for generating in particular EUV radiation (12) and/or soft X-ray radiation (12a), which device (10) emits a plasma (26) formed in an operating gas (22) in a discharge space (14), which space (14) comprises at least one radiation emission window (16) and an electrode system with at least one anode (18) and at least one cathode (20), wherein electrical energy can be transmitted to the plasma (26) by means of charge carriers (24) that can be introduced into the discharge space (14), characterized in that at least one radiation source (28), which introduces at least one radiation (30) into the discharge space (14), is present for providing the charge carriers (24).

16. A device (10) as claimed in claim 15, characterized in that the radiation source (28) generates coherent or incoherent radiation (30) of high energy density, whereby charge carriers (24) can be released into the discharge space (14) through incidence of the radiation (30) on the electrode system.

17. A device (10) as claimed in claim 15, characterized in that the radiation source (28) generates radiation (30) to be afflicted with mass which comprises at least one electron and/or one ion.

18. A device (10) as claimed in any one of the claims 15 to 17, characterized in that the radiation source (28) provides pulsed radiation (30) with a first radiation path (32) and/or at least one second radiation path (34), either simultaneously or mutually shifted in time.

19. A device (10) as claimed in any one of the claims 15 to 18, characterized in that the electrode system comprises at least one auxiliary electrode (36).

20. A device (10) as claimed in any one of the claims 15 to 19, characterized in that the radiation (30) is focused on at least one electrode (18, 20, 36) of the electrode system.

21. A device (10) as claimed in claim 20, characterized in that at least the electrode (18, 20, 36) affected by the radiation (30) is substantially manufactured from tungsten, molybdenum, iron, copper, tin, graphite, indium, tellurium, iodine, an alloy or chemical compound thereof, or steel.

22. A device (10) as claimed in any one of the claims 15 to 21, characterized in that the radiation (30) is incident on the electrode (18, 20, 36) in a point, circular, annular, or linear pattern and/or a combination thereof.

23. A device (10) as claimed in any one of the claims 15 to 22, characterized in that the electrode (18, 20, 36) affected by the radiation (30) comprises at least one cavity that is open towards the discharge space (14) and that is bounded by electrode material at at least three sides.

24. A device (10) as claimed in claim 23, characterized in that the cavity is a blind hole (38), a groove (40), or a hollow space (42) of constant or variable diameter, which comprises a depression (44) or an undercut (46), as desired.

25. A device (10) as claimed in any one of the claims 15 to 24, characterized in that the operating gas (22) can be introduced into the discharge space (14) by means of a feed duct (48) or by means of an auxiliary ray (50) focused at least on one electrode (18, 20, 36).

26. A device (10) as claimed in any one of the claims 15 to 23, characterized in that the radiation (30) can be introduced into the discharge space (14) via an aperture (52).

27. A device (10) as claimed in any one of the claims 15 to 26, characterized in that the radiation (30) has a wavelength in the UV, IR, and/or visible range.

28. A device (10) as claimed in any one of the claims 15 to 27, characterized in that the radiation (30) is incident on the electrode (18, 20, 36) at an angle (α) of 0° to 90° to the surface thereof.

29. A device (10) as claimed in any one of the claims 15 to 28, characterized in that the radiation (30) can be introduced into a symmetrical or asymmetrical discharge space (14).

30. A device (10) as claimed in any one of the claims 15 to 29, characterized in that a time delay (Δt) can be set between the introduction of the radiation (30) and the transmission of the electrical energy, or between the introduction of a or the auxiliary ray (50) and the radiation (30).